

BULLETIN
IOWA STATE PARKS

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Carolina poplar plantation along Squaw Creek north of the College. Picture taken January 14, 1922. Photographed by Prof. G. B. MacDonald.

May-June, 1925

Vol. 2

No. 6

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MEETING OF THE BOARD

The State Board of Conservation meets on the second Friday of the month in the rooms of the Executive Council in the State House.

BULLETIN

IOWA STATE PARKS

Published quarterly by the Iowa State Board of Conservation

Vol. 2

MAY-JUNE, 1925

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FORESTS AND FORESTRY

BY L. H. PAMMEL

We will devote considerable space in this number to forests, as this is a matter of considerable importance to Iowa as well as the nation at large. When we consider the amount of the timber used annually in the United States and the rate of growth, we can see the day is not far distant when we will be in great need of wood to supply our domestic needs. Forest Production and Protection week was quite generally observed in the United States. President Coolidge asked that April 27 to May 3 be set aside as forest week. Among other things he said: "We have too freely spent the rich and magnificent gift of nature bestowed on us. In our eagerness to use that gift we have stripped our forests; we have permitted fire to lay waste and devour them. Let us apply to this creative task the great courage and skill we have so long spent in harvesting the free gifts of nature. The forests of the country must be started today. Our children are dependent on our course."

In this connection I can do no better than to call your attention to the most excellent Arbor Day proclamation issued by Governor John Hammill:

By the Governor:

TO THE PEOPLE OF IOWA:

A PROCLAMATION

In proclaiming Friday, May 1, 1925, as Arbor Day, I desire to bring to the attention of our people the importance of tree planting. I wish there were some way in which human emotion could be aroused to the importance of beautifying Iowa by the planting of trees and shrubs around the home. There is no more pitiful thing than the settler's home without shelter. There is nothing more discouraging than to see homes and schoolhouses without nature's beauty surrounding them. The original gift that nature bestowed upon us in our forests has been too freely spent. We have stripped our forests and at times destroyed the young growth and the seed from which new forests might spring, with no thought of the future and while we already feel the grip of timber shortage, we have barely begun to save and restore.

To the end that our homes be made more beautiful and our forests preserved, it is necessary that our industries, our landowners, our farmers and all of our citizens treat our forests as crops, not only to be used but also to be renewed. We must learn to create and preserve our woodlands as carefully as we care for our farms. The children of today are dependent on our course. Unless we fulfill our obligation, generations to come will find that the generous and kindly gifts of Divine Providence have been denied them and we will be found unworthy guardians of a heritage which we hold in trust.

I respectfully recommend that Arbor Day be appropriately observed in our public schools, by Boy Scouts, Camp Fire Girls and all other citizens in order that we may have a campaign of education to arouse the American public to the menace as a result of the neglect and waste to the end that our forests may be protected and restored.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Iowa.

(SEAL)

By the Governor

Done at Des Moines, this 20th day of April, 1925.

JOHN HAMMILL,
Governor.

W. C. RAMSAY,
Secretary of State.

Governor Hammill, in an address over the radio on the night of April 29, said: "Let us heed this admonition and encourage forestry conservation wherever possible. Let us also go a step farther and emphasize the importance of our out-door recreation in the truest and best sense of the word in our woodlands and use them not only for the economic benefit, but use them for recreational purposes. Though Iowa will never become one of the chief timber producing states because of her intensively developed agriculture, she is a chief wood user, and anything that affects the supply or the price of wood, one of the basic materials of her industry, will certainly affect, directly and indirectly, the cost of carrying on that industry.

"If, as statistics show, the farmer uses annually 45 per cent or better of all wood consumed in the nation; and if, as authorities tell us, even though we should begin today to put our forests in shape, protect them, and handle them according to the most approved methods, every cord of wood and every saw log that we could raise during the next 100 years would be urgently needed long before it is ready for the ax then surely it behoves even us in Iowa to look to the future possibilities of our wood-lots as a valuable source of part of the wood we need daily to carry on our farming."

John P. Wallace also broadcasted on the subject in which he said:

"How eager we are to get out in the woods in the spring of the year, and yet how careless some folks are in their use of our beautiful timber tracts. Damage is done to trees that could be avoided. Fires are sometimes started that are not properly extinguished and thus do great damage.

"If we want our woodlands left for recreational purposes, it is up to us to study the forestry problems. We should not only take an interest in the starting of new forestry tracts, but likewise in the proper care and use of the tracts that it has taken years to grow."

The late Secretary of Agriculture, H. C. Wallace, said:

"The rational use of land correlation of timber crops with live stock and food crops based upon the factor of soil, climate, and market, is one of the foremost problems of the whole United States. We shall find a profitable crop, land which the plow will pass up, on much land of this kind, nature is ready with the crop—timber."

Dr. B. Shimek in 1910 in a paper "The Conservation of Our Woodlands,"* said in regard to our forests:

"Forest conservation is one of the broadest questions within the whole field of conservation, for it is concerned directly or indirectly with all phases of the great problem which now stirs the people of this country. It matters

*Rep. Iowa State Drainage and Waterways, 1910.

not whether we are interested in the conservation of our waters, our soils, or our mineral and other natural resources, we cannot destroy the function and the influence of the forest for it is related to every phase of the great problem."

The original stand of timber in the United States was 5,200 billion feet board measure. The present stand is 1,600 billion feet board measure. This is the virgin timber, and in addition 600 billion feet in culled and second growth stand. According to Professor G. B. MacDonald, the Professor of Forestry at Ames, the United States uses more wood than any other country in the world. He says, "We use three-fourths as much as all other countries of the world combined." The original forest area was 822 million acres, the present forest area is 445 million acres.

The United States forest service is responsible for the statement that we use annually twenty-five million cubic feet of timber every year and the annual growth in the United States is only six million.

The forest areas of the United States are all remote from Iowa, the most of it is in the Rocky Mountains and Pacific coast states. At least 60 per cent of our timber is found in the National forests. It is interesting to note that 45 per cent of this timber, according to the Forest Service goes to the farm. Now we of Iowa are specially interested because we pay an added freight bill for lumber of \$20,000,000; therefore the farm wood lot is certainly very important, and how best to skillfully manage this wood lot is a problem for the trained forester.

On this point Prof. G. B. MacDonald* has said:

"The state has extensive markets for the finished products of the forest. She has many industries which depend directly upon the forest for raw material. The state is one of the greatest consumers of fence posts—using annually 25 million—a figure which is based on a most conservative estimate. This represents a value of 4 to 6 million dollars. The consumption of forest products for other purposes, including fuel, will reach into the billions of board feet."

Prof. MacDonald furnished me the following interesting statistics. The average cost of lumber stocks has increased 99 per cent; the average retail selling price has increased 110 per cent; the average freight or transportation charge has increased 262 per cent.

From the above it would seem that the forestry problem is a serious one and we should consider what Iowa can do to relieve this situation. The farmers of Iowa are large users of lumber and something needs to be done to help this situation.

Iowa, as I have stated before, is deeply interested in the subject of reforestation. Professor G. B. MacDonald informs me that Iowa has approximately four million acres of woodland, which land, it is generally conceded, is too rough for the growing of good agricultural crops. In a way it is waste land, which, according to Professor MacDonald, may be divided into lands of rough topography, sandy or gravelly soil, those inaccessible to agricultural lands, lands that are subjected to periodic or annual overflow, and lands adjoining lakes.

Furthermore, it is generally believed that forests are essential because of the temperature influence. Those who have given attention to the subject assert that in order to equalize climate, twenty or thirty per cent of the land

*Proc. Iowa Forestry and Conservation Association 1914-1915. p. 134.

should be in forest. There are many reasons why the forests are essential to our welfare. They help to regulate stream flow and it is a well known fact that the run-off water in forests is less rapid than in lands not covered with trees. In other words, the humus of the soil in the forests absorbs the moisture and forests also retard the melting of snow. It is also a well-known fact that roots of forest trees allow a better circulation of the water and air through the soil and that the forest increases the water storage capacity.

It certainly is a serious question with us, when periodically we have dry weather and consequently the lower production of agricultural crops. May in part this not be due to the rapid run-off of water from rough lands and the lowering of the water level in the state? Doctor McGee, who made an investigation of stream flow and water levels in the state of Iowa, is authority for the statement that the water level of the state was lowered some 12 feet in fifty years. Wishing to obtain some accurate data on the content of water in forests, one of my graduate students, Professor I. T. Bode, made a study and found that there was a considerable difference in the water content of forest and open farm soils. The forest soil had a higher percentage of water.

The matter of soil erosion is another important item. Many of our uplands are so badly eroded that they are practically worthless for agricultural purposes. By the judicious planting of trees this soil would be kept in Iowa instead of going down the Mississippi river. Professor MacDonald has shown how this soil may be held by planting trees on this eroded soil. The experiment is being conducted in the Indian reservation in Tama county, the Wapsipinicon State Park and other places. The illustrations herewith shown demonstrate this conclusively.

One important matter in connection with this forestry week should be the planting of timber trees, not in a few places but on hundreds of thousands of farms in the state of Iowa where they need the wind break. When the subject of forestry was new in Iowa and pioneers began to cultivate farms, they started the planting of trees for windbreaks. Such men as Professor J. L. Budd and Judge Whiting of Monona county, Mr. Mathews and others interested in the agriculture of this state, did Iowa great service in preaching the gospel of planting trees. So urgent was the matter felt by them that they began planting long before the Honorable J. Sterling Morton started his Arbor Day planting. The teaching of forestry in the college of Ames was the direct response from the early crusade in Iowa for forests. The horticulturists of the state felt that forestry instruction was needed so that we might better understand the great forestry problems confronting the country, and that Iowa was to do its share in this work. The trained men in forestry have been of great service to the state and nation in looking after the great reforestation problems of the country, and we in Iowa are just as vitally interested in this as they are in St. Louis or Chicago.

I feel that the state and nation, for its own welfare and protection, will in the future sometime take over the unusable agricultural land and plant it to forest trees. It is a question of national protection and our welfare. The citizens of the United States are wise enough, I know, to see that China or Italy or parts of Europe shall not be repeated in this country. We love the woods too much to let such a catastrophe happen. Our duty is plain. If we are to be of service to the future we must plant trees. We need the benign influence of the forest and so let us encourage in every way possible reforestation.

tion. Forestry is intimately connected with agriculture. We need the forests for bird life, which destroys insects. We need the forests for recreation to make good citizens. It is absolutely necessary to give the people an outlet to the country.



Cottage and Shelter house, Eagle Lake State Park. Photographed by L. G. Roberts.

NATIONAL CONFERENCE ON UTILIZATION OF FOREST PRODUCTS

The purpose of this conference was to recognize better utilization of forest products, forest protection, and timber growing.

“1. We are faced with the unparalleled problem of maintaining a perpetual supply of forest products sufficient to meet the needs of the greatest wood-using nation in the world.

“2. Our national forest policy and plans for reforestation, now in the formative stage, must be shaped so as to meet the basic requirements of use; at the same time, wood usage must be greatly modified to conform to the present undersupply, and eventually to the accomplishments possible through reforestation and protection.

“3. Diminished forest resources will, within the next generation, have a radical effect on wood-using practices, manufacturing enterprises, and living conditions in this country. It is imperative that the existing supply be conserved and apportioned as effectively as possible.

“4. Approximately two-thirds of the present forest cut is now lost in the processes of conversion and through inefficient use. Of this loss approximately one-third is now preventable if available knowledge can be generally applied; another third can almost certainly be prevented by means of co-ordinated research; one-third will probably remain permanently unpreventable.

“5. Better utilization of forest resources demands the joint efforts of federal, state, and private interests, in the development and execution of adequate plans for the following three types of activities: (1) application of research findings, (2) direction and co-ordination of economic tendencies, (3) further research.”

The National Forest Service has just issued a report of this National Conference. This publication contains a large number of articles presented at this conference. Those desiring the publication should write for Miscellaneous Circular 39 of the U. S. Department of Agriculture.

CONSERVATION SCHOOL AT AMES

On February 19 and 20, 1925, there was held at Ames a conservation school made possible through the co-operation of the departments of botany, forestry, and landscape architecture, and the state board of conservation. The state board of conservation made possible the attendance of the custodians. At the time of this meeting the Iowa Conservation Association and the Audubon Society of this state also met at Ames. A large number of topics of importance to our park work were considered at the meetings.

The following abstracts and titles of papers are furnished by Prof. G. B. MacDonald, secretary of the Conservation Association:

THURSDAY, FEBRUARY 19

L. H. Pammel, The Protection of Wild Flowers in Our State Parks. State parks are not only for recreation but for the protection of wild life. The public parks of Iowa have become crowded with visitors who desire to come in contact with the great out-of-doors. These visitors do not always appreciate that the wild flowers need protection. Unless we establish sanctuaries in these parks, the delicate woodland plants will not be saved. Such sanctuaries should not even have a trail. Wild flowers must be left in secluded places. There should be signs telling people, "Do not pick the flowers. Leave them for others to enjoy."

M. E. Bottomley, Planting and Care of Trees and Shrubs. The consideration of how plants grow. How best to meet these conditions in transplanting and care. Digging, planting, pruning, mulching and time of planting will be considered.

J. R. Fitzsimmons, Sanitation in Our State Parks. Definition of sanitation. Scope of sanitary work in our state parks. The necessity of sanitation. Water supply, sources, quantity, quality and methods of obtaining for domestic use. Sewage disposal, closets, privies, septic tanks. Refuse and waste disposal, collecting, burying and burning. Enforcement of sanitary measures. Immediate sanitary needs for the summer of 1925.

H. F. Kenney, Visitors in Our State Parks. The planning of our state parks will be considered from the standpoint of taking care of the visitors in the parks in such a way that the fundamental purposes of conservation and recreation will be facilitated without hindrance one with the other. The relationship of the custodian to the visitors, together with some suggestions as to the handling of crowds will be included.

C. H. Diggs, Observations from Experiences in Our Parks. These areas should be made available without destroying their natural beauty. Co-operate with Nature. The public must know the proper use of park areas. The custodian must know the proper supervision of park areas. Many examples of the above.

M. L. Hutton, The Relation of the State Highway Commission to Public Roads in State Parks. Legal provisions, the general problem, need for roads, traffic in the parks, park road surveys and designs, details of specific construction, proposed work, park road maintenance and park road connections.

A. O. Thomas, Illustrated Address on Geology and Conservation. He discussed briefly geological areas which should be made into state parks. Such areas as Hackberry Grove, the Devonian fossil beds in Johnson county, the old State House quarry, the shale area where the horizontal juniper occurs.

P. H. Elwood, Jr., Landscape Architecture in the State Parks. To insure the restoration, preservation and conservation of the scenic, historic, scientific and recreational resources of the state parks is the purpose and scope of landscape architecture. Suggestions will be presented as to how this can be accomplished best.

John E. Smith, Conservation of Glacial Material, Fossils. Every lover of Iowa should be a lover of the things that make Iowa great. Our chief natural resources are the glacial material from which come our fertile soil, our pure

water and water power and the bedrock which gives us coal, gypsum, lime and clay. Associated with most of these substances are fossils which tell the stories of ancient plant and animal life here. Specimens of these materials and fossils should be collected and placed on exhibit in every public school and in every public library in Iowa. Many would learn to read the stories from the natural material. (Illustrated with material and lantern slides.)

Charles H. Ramsdell, Minneapolis, President Mississippi Valley Chapter, A. S. L. A., State Parks and the Public Interest Therein. The development of the return to nature movement and how state parks are endeavoring to satisfy this fundamental human need.

B. Shimek, How Shall We Save the Native Plants?

FRIDAY, FEBRUARY 20

H. E. Pammel, Trails in Parks. The history of the old Indian Trail and its subsequent adoption by the pioneer, and the present day use of the trail for an exhilarating walk and getting a glimpse of nature first hand. Trails can only be laid out by one who understands nature and the topography of the land. The type of construction is simple—use the material at hand. A trail should have an appropriate name. Blazing of trees should only be used to a limited extent. The contours of the land should always be taken into account.

Mrs. E. F. Armstrong, Women and Conservation. Women are, by nature and training, conservationists and have been among the leaders in interest in conservation both in Iowa and in the nation.

Arthur Goshorn, A. Willow Bar. A discussion of an interesting willow bar near Onawa. How it is formed and how it is of service as a refuge for birds.

J. E. Guthrie, Snakes and Their Relation to Wild Life (illustrated). In a discussion of snakes the usefulness of these creeping animals was taken up. Except the rattlesnake, all other native to Iowa are harmless and are among the most useful animals.

A. L. Bakke, The Upper Mississippi Lowlands (illustrated). Through the passage of the Upper Mississippi bill, the lowlands of the Mississippi are now saved for all time. The pictures reveal a nature-lover's paradise.

Harry C. Oberholser, U. S. Biological Survey, Some Phases of Wild Life Protection. The value of setting aside areas in the middle west which will serve as bird and game refuges. The importance of these areas in the conservation of wild life.

Walter W. Bennett, Island Bird Life (illustrated with natural color slides and motion pictures). The problem of conserving America's game birds and water-fowl—that is, the few that still remain—so the sportsmen of the future will have a chance to experience the same hunting as did pioneers of this section, was the subject of this address by Walter W. Bennett, president of the Sioux City Bird Club. Speaking on "Island Bird Life," Mr. Bennett briefly gave the result of several years' study of this phase of conservation. The talk was illustrated by over a hundred photographs in natural colors and a reel of movies of some of America's rare game birds and water-fowl. All were made by Mr. Bennett himself during trips to unsettled parts of the middle west.

Henry S. Conard, Outdoor Museums. The value of state parks and other areas as natural museums. The park system which Iowa is building should serve admirably for natural museums of this kind.

T. C. Stephens, Recent Steps For and Against the Conservation of Wild Life.

G. B. MacDonald, Reforestation Work in Iowa (illustrated). Iowa has extensive areas of land of low value which are not suited for agricultural work. These lands could produce valuable crops of timber. Trees are valuable for checking soil erosion and in retarding water run-off. Iowa has many trees suitable for this work.

Banquet of Iowa Conservation Association, Iowa Ornithologists' Union, and Conservation School Students.

Address—President R. A. Pearson, Ames.

Address—C. F. Kimball, Lieutenant Governor of Iowa.

Address—Mrs. Francis E. Whitley, Webster City.

Address—William E. G. Saunders, Emmetsburg.

Address—L. H. Pammel.

Address—Representative Maxfield of Marshall County.

SATURDAY, FEBRUARY 21

ANNUAL MEETING OF IOWA ORNITHOLOGISTS' UNION

Business session Iowa Ornithologists' Union.

W. M. Rosen—Annual report of president.

Mrs. H. M. Bailey—Annual report of secretary.

Dr. T. C. Stephens, Report of Pittsburgh meeting of American Ornithologists' Union.

Charles J. Spiker, Report of Nashville meeting of Wilson Ornithological Club.

Miss Kathleen Hempel, Adventures in Bird Banding.

L. T. Weeks, Birds of Sixty Years Ago. Some particular phases of the extinct passenger pigeon, of the long-billed curlew, the prairie chicken, swans, pelicans, and sandhill cranes.

Business Session—Report of Publicity Committee, C. J. Spiker, Chairman.

T. W. Whitney, Martins and Martin Houses. Short history of our own colony and growth of martin housing in Atlantic. Weather of late April and early May, 1917, and its effect on the first flight of martins in that year. Do the martins retreat southward in stormy spring weather? Preferred types of martin houses and poles. Effect of improper houses on the life of young birds. Practical methods for discouraging sparrows. Why do the martins desert their houses so soon after mid-summer? Our martin house on Cullen Lake, Minn., and remarks on migration observed there in August, 1924.

John J. Cole, The Economic Relation of Birds to Agriculture (illustrated). In their relation to insect and other enemies of crops, birds are most directly associated with the welfare of mankind, and their value in this particular should be made as widely known as possible.

Wier R. Mills, The Birds' Garden. "The Birds' Garden" is a corner of a village lot only a block from the main business street of the town. In this corner are shrubs and vines of many kinds and a few old apple trees give shade for flowers from the woods. A winding path leads through this spot and at the east end is a rockery which extends out into the sunshine. While not planned for the birds it has evidently met with their approval for about one hundred species have been observed there and on the immediate premises and sixteen species have nested there. So it has been named "The Birds' Garden."

Mrs. Henry Frankel, Popularizing Birds. The attracting of birds about the home is justified by the interest created. People who have not felt the "call of nature" are more or less bored by bird talks. Giving long lists and descriptions of birds to the casual group is a waste of time, and taking beginners on bird hikes is a great annoyance to the real observer. Interest can be awakened more easily, I have found, by bringing people to my home and showing them at close range a nuthatch running head down a tree or a wood-pecker climbing down backwards. Persuading them to put suet on their trees and to supply food and water so that they can attract them to their own premises excites a lively interest. Showing the various devices and the books I have used, also the bird houses that have been occupied (and where to place them) and the homemade suet rack and bird bath, gives ideas which part of the audience will carry out and once they have seen a nuthatch near their own window they become sound conservationists and ardent birdlovers. Exhibition of feeding trays, books and a few favorite bird houses.

A. J. Palas, An Iowa Bird Student in Colorado.

Rev. L. T. Weeks, The Garden of Eden. The desirableness of primitive conditions in nature as a source of recreation.

On Friday evening there was a round table discussion which was on various topics pertaining to state parks. Mr. John R. Fitzsimmons has given me the following data:

CONSERVATION SCHOOL

BY JOHN R. FITZSIMMONS

On the evening of February 19, 1925, an informal dinner was held at the Cranford Cafe, Ames, which was productive of many interesting and valuable talks and discussions pertaining to the Iowa State Parks and conservation in general.

The impromptu talks began when the assembled party prevailed upon Mr. Carl Fritz Henning to speak of his park and his observations there during the years of his connection with that area. A brief account of his remarks and those of others, is here recorded.

Mr. Carl Fritz Henning, Custodian, Ledges State Park:

The unexpected request caused Mr. Henning to open his remarks with a short account of the birds and animals that form part of his life at the "Ledges." He reported that the comparatively light fall of snow during the winter of 1924-1925 had made it possible for many birds and animals to stay in the park. Song sparrows, red headed woodpeckers, sennet night hawks, magpies, cardinals, goldfinch, tufted titmouse, quail, fox and 'possum were among his many wild game visitors. He further made a plea for a united effort among bird lovers to oppose the contemplated open season on quail.

Mr. H. L. Taylor, Custodian, Pilot Knob State Park:

Mr. Taylor reported an attendance of 21,000 persons at the park during the summer months of 1924, distributed some very fine photographs of sections of the park and pointed out that many Indian relires are to be found in Pilot Knob, including a village site. Mr. Brown of Forest City has given considerable time to the study of these land marks.

Mr. Taylor further reported that fox and pheasants were plentiful in his part of the country and that the park was offering a safe haven for them.

General discussion of Indian relires, mounds, village sites and the fate of the present day Indian.

Mr. Roy Archibald, Custodian, Oakland Mills State Park:

Mr. Archibald gave a very clear and inspiring talk on the location of the park. The pictures he drew of natural beauties of the area enhanced by the calls and songs of birds, the splash and trickle of running water and the carvings of nature into life-like animal forms gave one a feeling of desire to visit and live for a while in this bit of nature's garden.

He pointed out the needs of roads and paths for recreational guidance in the park but realizing the task already in hand with the many new parks, he would patiently look into the future for these improvements. Blue jay, redbird, oriole, robin and quail were his chief visitors during the winter months.

Mr. L. P. Stillman, Custodian, Tuttle Lake State Park:

Mr. Stillman pointed out the need for repairs on the cottage at the lake and the need for action on the park of the proper authorities, to bring about the removal of carp and buffalo from the lake as they are rapidly destroying much of the natural lake shore vegetation such as rushes, wild rice and lilies. He advocates any and all methods for the protection of the quail. Visitors at the park last summer, 7,500 people.

Mrs. F. H. Rhodes advocated the changing of the name of Tuttle Lake State Park to Okemanpado State Park, the word "Okemanpado" coming from

the Indians and meaning the nest of the blue heron. This seemed indeed significant as this lake park was at one time very heavily grown with rushes and the natural habitat of the blue heron. She further expressed her hope that no roads would be constructed at this park.

Mr. P. T. Davison, Custodian, Eldora, Pine Creek State Park:

Mr. Davison gave a very interesting description of the park with its artificial lake in a natural setting of forested hills and grass land meadows. He called attention to "Wild Cat Den," a rock formation of considerable interest outside of the park proper, along the Iowa river, is a beautiful rocky glen.

Mr. W. A. Abbott, Custodian, Backbone State Park:

Mr. Abbott opened his remarks with the statement that he, like the true husband who believes his wife is the best woman in all the world; believes that Backbone State Park in Delaware county, is the best state park in Iowa.

He offered the highest of admiration and praise of the adequate road system installed within the park but further confided that only a small portion of the many wonders could be enjoyed from the road. The many springs, streams and brooks, the brook trout, nature's picnic sites and wild native landscapes were further into the park lands as an inducement to the recreative needy public. Wood, fire places and shelter have been provided and the welcome is always uppermost at Backbone State Park.

Mrs. F. H. Rhodes, Fort Defiance State Park, Estherville, Iowa:

I am very sorry that I cannot tell in detail about our state park here. We named it Fort Defiance State Park, after the old fort built here for the early settlers, to protect them from the Indians, about the time of the Indian massacre at Spirit Lake and Lake Okoboji. Fort Defiance State Park has fifty acres now, steep bluffs, a fine valley and beautiful trees and flowers. It is an old fashioned glacial valley. The Des Moines river is close to the park. We are glad the park was created. Not knowing I was to speak, I am not prepared.

Dr. L. T. Weeks, Emmetsburg, Iowa:

Dr. Weeks very enthusiastically advocated the united effort of all interested conservationists in the campaign against open seasons on quail or bob whites, and added that their value as insect destroyers outweighed the damage they did to crops.

He favored the party with two of his poems: "Bob-White" and "The Wren."

Mr. F. W. Pease, Lansing, Iowa:

Mr. Pease volunteered a method of protecting quail during winter. By building shelters of brush and grass in the likely quail habitats they can be induced to adopt these shelters by the use of cranberries as bait.

He further advocated the importation of the partridge into Iowa.

Mr. Bennett, Iowa City:

Mr. Bennett advocated the importation of the Hungarian partridge into Iowa and recounted an attempt to do so at Emmetsburg, Iowa, six years ago. He stated that they have spread in all directions from there and seem to be surviving.

Discussion of importation of foreign birds into this country. Mr. Henning expressed his desire for native varieties only. Mr. Pease made a statement relative to the failure of imported birds to become acclimated in Iowa.

Mrs. Henry Frankel, Des Moines:

Mrs. Frankel gave an account of the growth of the Des Moines Garden Club and its varied activities. She further pointed out the growing appreciation and desires among the club women of the state for the native landscapes.

Mr. H. J. Toole, Lamont, Iowa:

Mr. Toole is an ardent booster of Backbone State Park and in general the subject of conservation and the work of the State Board of Conservation.

He pointed out the need for more parks and a greater distribution of game preserves throughout the state as places of refuge for the wild animal and bird life. As a word of encouragement he pleaded with those present to return to their community and spread the good gospel of state parks and conservation, and further pointed out that a small start will get the ball in action and greater weight will be accumulated as the movement takes its course. Opposition he said could be expected but perseverance would win out and the cause would justify the fight.

Mr. Bennett, Iowa City:

Mr. Bennett concluded the evening with an enlightening insight into the founding of the Izaak Walton League; its initial object of game preservation for hunting and spoils only; of the gradual growth towards conservation of more than game birds and animals, but of every living thing, including man. He pointed out lastly that these men have, through their work of conservation, been brought in closer contact with God Almighty through his handiworks of nature and they are better men and better citizens for having done so.

Those present were as follows:

Mrs. Irwin T. Bode, Ames; I. T. Bode, Ames; H. F. Kenney, Ames; Mrs. Mary L. Bailey, Sioux City; F. W. Pease, Lansing; John R. Fitzsimmons, Ames; P. T. Davison, Eldora; Carl Fritz Henning, Boone; L. P. Stillman, Dolliver; L. H. Pammel, Ames; M. L. Hutton, Ames; W. A. Griffith, Mt. Pleasant; C. H. Ramsdell, Minneapolis, Minn.; Fanny Duren, Eldora; P. H. Elwood, Ames; Mrs. Henry Frankel, Des Moines; Mr. Bennett, Iowa City; Mrs. F. H. Rhodes, Estherville; C. H. Diggs, Ames; W. A. Abbott, Lamont; H. J. Toole, Lamont; H. L. Taylor, Forest City; Roy Archibald, Mt. Pleasant; Le Roy Titus Weeks, Emmetsburg.



Mr. John Ford, Senator Perry Holden, O. M. Oleson, J. B. Black and L. H. Pammel, Frank Paige to the left, inspecting proposed state park now known as the Dolliver Memorial State park in winter of 1920. Photographed by H. C. Fuller.

CUSTODIAN'S CONFERENCE IN DES MOINES

It may be worth while here to call attention to an earlier conference held in Des Moines on March 9, 1923.

Mr. E. R. Harlan, secretary of the Board of Conservation, suggested a conference with the park custodians and the State Board of Conservation; in accordance with a plan outlined by him this conference was called on March 9, 1923.

There were present at this conference on the part of the board: W. G. Haskell, L. H. Pammel, E. R. Harlan, Mrs. C. H. McNider and Mr. D. C. Mott. The full proceedings will be found in the minutes of the board of that date. This conference was held in the rooms of the state historical building. The following custodians were present: Ellet Lepley, Carl F. Henning, H. L. Taylor, W. H. Morehead, J. M. Folck, C. N. Douglas, H. E. Rees, Lee Y. Trower. The discussions were participated in by the above custodians and members of the board.

The following topics were discussed: The building of fences and its relation to partition fences, badges, authority of custodians, assistant custodians, who has the responsibility of the roads in parks and construction of the same, road machinery, ownership of lands between meander lines and public waters, disposal of buildings in park areas, boy scouts, registration and stations for the same, community shelter houses, summer cottages, creek channels, parking spaces, wood for fuel, toilets, labels for trees, landscape architects, blacksmith shops, clover seed for parks, hunting on Blue Lake, camp ovens, garbage cans. This round table discussion with the custodians brought out a large number of interesting queries for park custodians.



PARK PROPOSALS AND GIFTS

Pine Creek Hollow, Dubuque County. The State Board of Conservation several times this spring received communications calling attention to the fact that a considerable number of white pines had been cut on the Pine Creek Hollow area, Dubuque county. This is very much to be regretted because it is one of the most desirable park areas in the state. Mr. F. E. Bissell of Dubuque, who is very much interested in this area for park purposes, wrote the editor of the bulletin that he had counted some of the annual rings and found that some of the trees which had been cut were 85 years old. I am sure that there are pine trees here that are over 150 years old.

The Iowa State Board of Conservation received from the Iowa Conservation Association through the president, Dr. C. R. Keyes, and Prof. G. B. MacDonald, the secretary, the following resolution concerning Pine Hollow:

The executive committee of the Iowa Conservation Association has long understood the scientific value of Pine Hollow in Dubuque county. This area is one of the few remaining spots in Iowa where the white pine still exists. It is thought that the state would make a mistake in not preserving this area in as near its original condition as possible. The value of the tract from scientific aspects will become more apparent as years go on.

It is understood that portions of Pine Hollow have already been cut over, and that in time the entire area will be destroyed from a scientific or recreational standpoint if steps are not taken in the near future to preserve the tract.

The executive committee of the Iowa Conservation Association commends the State Board of Conservation in its policy of preserving scientific and historic spots in Iowa along with other areas which are valuable primarily for recreational purposes. The executive committee of this association believes it will be in the best interest of the state of Iowa if the State Conservation Board can find means of preserving Pine Hollow in Dubuque county as a state park to be preserved for all time for the scientific and recreational use of the people.

Mrs. C. H. McNider, Mrs. E. F. Armstrong, and L. H. Pammel constitute a committee of the board to consider the matter of purchase.

Peterson, Northwestern Iowa, Proposed Park. For some time the Izaak Walton League and a number of other people at Peterson have requested that the state create a state park on the Little Sioux river in northwestern Iowa near the town of Peterson; a beautiful piece of woods on the slope of a fine hill. Mr. A. O. Anderson writing, expresses this fine sentiment:

“You can restock the rivers with fish in five years but those hills over there cannot be restored with the trees there now in the next generation.”

Sidney Wants Park. Urgent requests have come for a park near Sidney in Fremont county. They offer a fine piece of woods to the board for park purposes, also some adjacent loess bluffs in the vicinity. The board will pay this region a visit at an early date and we hope may give southwestern Iowa a park. These tracts of ground are said to have an unusual number of wild flowers.

Manti. Some citizens of Page county have written to the board requesting that the board purchase a tract of ground in the vicinity of Manti, Fremont county, near Page county line, for park purposes. It is said to have fine trees and many wild flowers. Manti was an old Mormon settlement and a number of the old settlers are interested in it on that account.

Clarke County. This county has presented a petition for a 90-acre park near the Jefferson highway. It is a fine wooded tract, with a piece of prairie, about 10 acres. Said prairie acreage is quite rough and is one of the few pieces of prairie left in the Kansan drift sheet in southern Iowa. Not only the slough grass and bunch grass are common but lilies, Culver's root, and pleurisy root are abundant. This prairie is a most interesting place. The board has investigated it and a report is on file with the secretary.

West Union. Several fine tracts near West Union have been proposed for state parks. Fayette county has some most attractive areas, fine running brooks and springs. A correspondent has referred to it as the “Switzerland of Iowa,” a phrase first coined by Prof. S. Calvin. There is also a Pine Ridge. The white pine, alas, are gone. I am told by some of the old settlers that pioneers found some on this stream. Then there is Dutton's Cave, and Falling Spring. The citizens would like to have a park made out of the area known as Devil's Backbone which Mr. Beall of the West Union Argo Gazette describes as “a wonderfully interesting place, geologically and botanically.”

Nora Springs. The citizens of Nora Springs in Floyd county offer some attractive small areas for park purposes. Fine second growth timber of ash, walnut, white, black and bur oaks is found.

Gift Near Palisades Park. The state is under great obligations to Mrs. M. Randall of Mt. Vernon, Iowa, who deeded several lots on the Mt. Vernon side of the Cedar river opposite the Palisades State Park.

Elbert Walnut Tract. A beautiful wooded tract of some 300 acres on the Coon river between Valley Junction and Commerce has been under consideration by the board for some time. This tract contains some fine sandy bathing beaches, some magnifieent black walnuts, red elm, white elm, bur oaks, and haekberry. The red elms are some of the largest trees of this kind in the state. The area represents a type of area quite different from a scientific standpoint than any other park thus far created by the state. The supervisors of Polk county appropriated \$10,000, the Greater Des Moines Committee \$12,000, and Valley Junction \$5,000, towards the purchase of the tract.

The Saylorville Tract. The Hon. Addison M. Parker tract between Saylor and Saylorville in Polk county north of Des Moines is another magnificent timbered tract of 120 acres. It is most picturesque with deep ravines, clay banks and sloping hills. Some of the original elms, hard maple, white, red and quereitron oak cover the area. Some of the early settlements of Polk county were made here. Indians formerly tapped the hard maple trees for sugar.

Little Wall Lake, Hamilton County. Letters have been received by the State Board of Conservation relative to Little Wall Lake in Hamilton county. One written to Mrs. C. H. McNider from John D. Dennison of Des Moines states that certain parties were about to dredge Little Wall Lake near Randall. He was especially interested because it has some of the most wonderful pond lilies in the state of Iowa. Let me relieve the mind of Mr. Dennison to state that by resolution of the board some time ago this was created a state park and through the interest of the Izaak Walton League at Jewell Junction, Ames, Stanhope, Randall, Story City, Nevada and other chapters in this vicinity, an effort is being made to raise \$6,000 to purchase a beautiful tract of woodland on Skunk river near the lake.

I have also received articles written by Professor M. Cleghorn, Claude Campbell and others urging a popular subscription to buy this tract of land on Skunk river. Late during the winter in March members of the Conservation Committee of the House made a visit to this lake and praised its value for recreational purposes.

At a meeting of the Izaak Walton chapter at Jewell addresses were made by former Representative Anderson, present Representatives Mr. Knutson, Mr. Maxfield and the chairman of the board. At a subsequent meeting held early in May an address was made by Captain W. E. G. Saunders and others. The State Board of Conservation would be willing to make the necessary improvements in order to preserve the last of the southerly extension of the glacial lakes in the Wisconsin drift sheet.

Not only is there here a wonderful bed of white water lilies, but it contains the rare red shield water lily (*Brascnia*) and many other interesting water plants. The board has set out 3,000 shrubs and trees on the shore of the lake between the Wilson highway and the lake. A visit a short time ago indicated that these plants are growing splendidly. A road will be built and the small glacial hill and marsh adjacent will be preserved. It is of interest to note that thousands of ducks like mallards, and mudhens were in abundance on May 18th. What a delight to have these birds nest here!



The Des Moines Garden Club studying wild plant life—Devil's Backbone park near Winterset, May 14, 1925. Photographed by John L. Ruf.

THE VALUE OF RECREATION

Professor I. T. Bode in the Iowa Homestead of April 9th has done a little figuring on the value of recreation. Speaking of the National forests he makes the statement that, "It is safe to say that probably 10 million people visited the National forests of the United States in 1923. It is no doubt entirely conservative to say that 50 million or more people make some recreational use of our forest and woodland for at least one day a year. If they do, and if this recreation is worth as low as twenty-five cents a day there is a return from these lands of $12\frac{1}{2}$ million dollars annually." The forest service he says figuring this on the basis of amusement parks places the recreational value at one dollar per acre. "If this is so, the United States has a 463,000,000 crop of recreation on her 463,000,000 acres of National forest alone." Speaking of Iowa, he says, "We have a capitalized recreational stock in land of over \$4,100,000." Let me add that for 1924 it was twice this amount for persons who attended state parks and more than four times this amount if we take into consideration the people who receive the benefit of recreation on the waters of Iowa. That is to say the capitalized recreation for 1924 was \$16,400,000. Please do not understand me to say that the state has purchased all of this land to provide for recreation because of the large water and stream acres in the state, 100,000 acres came to Iowa through the Federal Government. Our share in this recreation in land purchased and received by gift from individuals is \$8,200,000. Our park work is making more people happy and doing its part in making better citizens. Stephen D. Mather of the National Park Service has recently made the statement that the parks are great educators for the people.

TRAILS

BY H. E. PAMMEL

The first forests put under administration were game preserves. These were set aside by members of the nobility in different countries and were protected by them for hunting. Recreation is thus historically one of the oldest of all forest uses and it is quite obvious that for thousands of years this was one of the principal uses and in a large number of forests the only utility seriously considered. In due course of time fishing became one of the main recreative uses of these forests.

Hunting and fishing are thus typical forest recreations. They exemplify a long series of very human and very valuable uses to which forest areas are put in these latter days in a more intensive civilization. In these early days there was an abundance of wild game, consequently little or no thought was given to the matter of conservation of wild game. The pioneers of



21-1 August, 1921.

Area adjoining Tama Indian Reservation which shows erosion similar to the erosion which was taking place on the portion of the Indian Reservation where reforestation work is being attempted. Some of the gullies are 12 to 15 feet deep. Photographed by Professor G. B. MacDonald.

America had little occasion to think upon this serious problem as it confronts us today. In many sections of the less inhabited part of the United States there is still the feeling there will always be sufficient game to satisfy those interested in that phase of recreation. This viewpoint, however, is fast becoming extinct, and through education people are learning the true facts of the situation.

The advance of civilization has naturally destroyed "nature's balance," which can never attain its former standing. In the realization of these facts different states have established game laws governing hunting and trapping. Realizing that laws would only partially control the destruction of our

wild animal and plant life various states and the national government have established areas known as state, national parks and national forests. These tracts, especially state and national parks, serve as sanctuaries for wild animal and plant life.

It would be impossible for these state parks with their limitations in area to harbor sufficient game to satisfy the multitudes participating in the hunting sport. It is therefore evident that state parks have to be utilized for other forms of recreation.

The state parks of Iowa were and are being created with a fourfold purpose. This consists of recreation, history, science, and the conservation of wild animal and plant life. The recreational resources offered by these areas to the public benefits the greatest number of people, however, with recreation in the great out-of-doors comes education, which is so essential in the upbuilding of a nation.

It is a serious problem how to employ methods by which many may be



The same area in process of reforestation. The deep gully in the center of the picture was planted two years previously to cottonwoods in order to stop the excessive gullying. The remainder of the area was planted to black locusts, walnut and pines.

This area is quite typical of hundreds of thousands of acres of rough eroding land in eastern and southern Iowa which should be protected and made productive by reforestation. Photographed by Professor G. B. MacDonald.

enticed into the open air but even more serious is the question to have the public comprehend the intense value of the wholesome exercise derived through the use of trails. Tramping along these trails is one of the chief advantages one can derive by using a park for recreation. The present article is a treatise on trail development and construction, which the author trusts may be of value to those interested in park development.

History. Trails, it may be said, are continually going through a process of evolution. This evolution is indeed quite pronounced if one cares to go

back merely a few years. Undoubtedly we all can remember when one certain road was but a lane, and then recollect when such was transformed into a beautiful scenic, or into a trunk highway. This lane, however, was probably not the beginning, this distinction going to the wild animals that once inhabited the region. Animals in their search for water and suitable forage invariably used the same trail over and over until such travel became well defined. Indians upon discovering these trails would lurk in nearby coves and await their opportunity to pounce unsuspectedly upon the game. These men of the forests and plains also utilized these trails as their route of travel between different points, the animals having used the line of least resistance.

The pioneer white men, finding it necessary to hunt wild game as a means of living, instinctively followed these same trails, which later through common usage became established as roads. Gradually as arterial highways became essential these enlarged trails were converted into state or national highways. Many of the more prominent trunk roads in the country had as their beginning the embryo trail. Probably the most outstanding example of this is the Santa Fe Trail, which in the true sense of the word was evolutionized from the great buffalo herds of the plains, through the era of Indian superiority, to the present day of congested automobile travel.

City Parks. It has not been until comparatively recent years that material attention has been given to the establishment of municipal parks in the larger cities of the central states. This was largely due to the great expanse of country in which people were allowed to recreate, surrounding the different communities. With the center of population gradually moving westward, however, it became necessary to establish city parks to meet the urgent demands of its citizens. This chronological progression of parks into the central states has been of material benefit in that we have been able to profit by mistakes made in eastern cities. Through a systematized management our cities in this section have been able to do in one undertaking that which took a number of cities in the east several.

As a result of these incidents our city park commissioners have been able to set aside and formulate plans for parks that would meet the requirements of all human recreational needs. One of the chief enjoyments derived through the usage of these parks has undoubtedly been through the use of trails. The majority of people are thoroughly satisfied with hiking over well defined paths to the various points of interest and will spend many of their leisure hours over the same route in the course of a year's time. Many of the larger city parks are provided with bridle trails, which, while not catering to the majority of recreationists, offer opportunities to those able to participate in this wholesome exercise. Both of the mentioned types of trails are constructed for the purpose of durability to withstand intensive traffic. This necessitates their construction being more or less artificial.

Types of trails used in state parks are similar to those now used in city or community parks. The state park movement, however, being comparatively new, little or no attention has been given to this phase of recreational development. In many of the large state parks in New York trail development has been the greatest influencing factor in attracting recreationists, however, in Iowa while an attempt has been made to establish trail systems in individual parks no appreciable result has been perfected. It is for the

welfare of the parks in general that trail systems be worked out systematically in each individual park. In several of our state parks I have had occasion to visit, I have noticed deplorable conditions resulting from lack of poorly aligned trails which either permit people to tramp promiscuously up and down slopes or to so deeply imbed a trail in soil that only miracles could cause a cessation of erosion of great magnitude. It would be a far reaching policy of benefit, at the earliest moment, to request people to use designated trails, provided however, these trails have been laid out in a definite system.

So far as state parks of Iowa are concerned there are but two classes of recreationists and the key to the solution for trail development lies in an understanding of the habits of these recreation seekers and their resultant behavior with relation to wooded areas. Such persons fall into two classes—true woodsmen on the one hand, and on the other lovers of the woods who are not necessarily woodsmen. To the latter class belong by far the greater per cent of all vacationists. This class derives no pleasure in scrambling through a trackless wilderness, no matter how well forested. They prefer the beaten path, the automobile road, the lake shore or stream, and the well constructed trail, and to these restricted routes they will confine their travels. What they see of the forest or woods is encompassed by the distance to which the eye can penetrate the screen of trees and the under-growth along the routes laid out for their convenience. Their natural objective is the comfortable enjoyment of the woods combined with the attractions of the stream or lakes.

The small per cent remaining constitute the hunters and hikers. For the hunters the preservation of areas as parks is unnecessary and is not expected by them. The hikers usually prefer trails to cross-country scrambles through the brush.

In practical operations of any park the development of circulation is the second technical problem, coming immediately after conservation. In order to secure any human use of park areas it is necessary to have trails and roads by which the public will be allowed to circulate freely through the area. There must be suitable trails for pedestrians and for those on horse-back where such form of recreation is indulged in. These are the traditional methods of seeing the forests, and the best, according to Prof. F. A. Waugh.

“Trail development falls into two categories: First, the problems of location, in which the endeavor is made to reach the most desirable scenery in the most effective manner. The second series, which is even less understood than the first, deals with construction problems.”

The fundamental principal involved in trail alignment, and that which must be kept continually in mind, is the destination desired. To make a trail serve the greatest advantage to all people it is essential that such should have its beginning at some developed area within the park. It is, of course, not necessary to locate a trail with the purpose of obtaining the shortest route between the two objectives. On the contrary it is essentially proper that the trail be diverted to a limited degree and laid out to reach the scenes of greatest charm, and at the same time following lines of natural drainage. In all trail alignments in forests or woods there are doubtless many opportunities afforded for the opening of picturesque vistas. Occasionally for this purpose it will be necessary to remove clumps of vegetative

growth, however, not to such an extent as to hinder future growth or to cause erosion. In the laying out of the trail an attempt should be made to have the points of interest increase in magnitude as the trail continues and at the end to have an appalling vista or some interesting feature as the climax.

To have a path of this nature thoroughly conform with the natural landscape and to suffer least from erosion it must be remembered to align such along the natural contours as much as possible. This constitutes the important factor in attracting the greater mass of recreationists to these beauty spots, in that few people of middle age, those who should have exercise most, will participate in hiking upon learning of considerable climbing necessary to obtain a point of vantage.

At an abrupt change in the direction of the trail, called paragraphic point, it is desirable to have some interesting feature, preferably a vista. At this point it might be well to erect a rustic bench on which those wearied from the hike might choose to rest for a few moments.

In areas as characterized by the state parks of Iowa it is essential that nature be symbolized to the fullest extent. Difficulties encumbered in this problem can chiefly be overcome through strict adherence to laws of nature regarding trail construction. At this point, I again think it appropriate to refer to the psychological aspect of recreation as pertaining to its participants. Those of us who love the woods and marvel at all its splendor enjoy without comparison the travels we take along nature's beautiful streams or in the cool retreat of ravines. We do not at that particular time choose to think of features in any way connected with congested city life; we care only for those things making up the large playground of which we are a part. For this reason I advocate as little artificial construction work used in trail development as possible. To thoroughly understand trail construction we might wisely make an empirical study of wild animal life and benefit much by the same.

In this phase of development it is extremely necessary that steep grades be avoided. It might even be well to place a grade of 15 per cent as the maximum, which enables the trail to be accessible by all groups of people.

In the brushing or clearing out of proposed trail alignment caution should be exercised in removing only that vegetative growth which is necessary or obtrusive. This material should not be left along the line to act as an eye sore but should be carried to some remote point out of vision from the trail. The natural debris, such as partially decayed logs, should be undisturbed as this gives one a true conception of nature. Herbaceous materials contiguous to trails should be left unharmed so far as possible; this also applies to the floor of the trail as such plants will greatly aid in holding erosion in check. If necessary slopes adjacent to the trail should be planted with herbaceous growth.

It is quite often necessary, due to topographical conditions, that a trail be aligned on a steep slope. In an instance of this nature the construction of a retaining wall will be found of unlimited value. Nothing but local material is appropriate for a construction of this type, and this should not be laid with mortar, as the dry wall has been proven to withstand as much pressure or traffic as the former and is more pleasing to the eye.

The type of retaining wall construction may vary with existing conditions

in the various sections of the state, however, there are a few fundamental principals that apply in every case. The use of as large stone as possible is very essential as they are not so easily knocked out of place and will withstand a great deal of abuse. The rocks should not decrease materially in size as the top of wall is approached, however, the largest stones should be utilized at the base.

The determining factors pertaining to trail widths are those of topographical conditions and uses to which it will be obligated. At no place, however, should the trail be so narrow as to jeopardize one's body to injury. It is also advisable to have sufficient width to allow two people to walk comfortably side by side, which necessarily means a trail of at least three and one-half feet.

A point to be constantly kept in mind is the matter of sloping the banks on the hillside above the trail. These banks must not be too steep as erosion in such a case will eventually work havoc to a large degree, destroying the trail as well as inflicting great loss of soil.

Where there is no alternative for a steep incline in trail alignment it will be necessary to use stone steps to solve the situation. This is an expensive procedure and is not recommended except in case of necessity and the work of building these steps is not for one inexperienced in this phase of occupation. If such an instance is found necessary after a complete study it is quite permissible to use this method to a limited degree. In this operation large stones, larger than those used in retaining walls, are necessary. If more than one stone is required for one single step, the use of two medium large and one smaller rock is advocated, the smaller to be placed between the two of larger dimensions.

Many reasonable recommendations for carrying a trail over a creek have been advanced, however, probably the most successful and appropriate method in use is that of bridging. These bridges are not of the general construction type as they are made entirely of logs. They should be thoroughly rustic in every minute detail and not too elaborate as is very often the case. Extreme caution must be taken in this construction phase to insure safety to those using bridges. Many other suitable methods of crossing a stream might be used and these will necessarily vary in relation to the trail alignment.

Bridle trails have not entered the state parks of Iowa as yet to an appreciable degree as a form of recreational development. Many of the large parks in Eastern states, however, have found these to be extremely important and are continually receiving requests for more of such. I feel certain that if bridle trail systems were instigated into our larger parks they would be received by the public with great enthusiasm.

The location of these trails is not as important a factor as that of foot trails, however, a word or two pertaining to such might be of value to those not fully acquainted with their use. As a rule these trails are not limited to grade maximums but it is advisable where possible to align such on a ridge and to remain in such a position to as great a distance as possible under the conditions. These trails should lead through wooded areas and at intervals interesting vistas should be afforded the riders. A circumferential bridle trail of a park might readily be accomplished with little work necessary. The blazing of a few trees to define the trail is all that



Blue-eyed grass—and Indian Tobacco or Pussy-foot, spring blooming plants common in our parks.

is essential; the horse and rider will in short render the trail discernible. Many recreationists who are true lovers of nature will prefer those less defined by-ways to those of better construction.

One of the most important features of a trails system within a public park is the designation of them by appropriate names and the showing of location with suitable signs. No standardized plan is now in use by the parks of Iowa as a whole, and the Ledges State Park is the only one which has standardized a uniform system. These trails should receive some appropriate descriptive name as "Sandy's Knob Trail". The old system of naming trails was that of honoring distinguished persons, which, of course, had no descriptive meaning. One following a trail desires to know the destination of such which makes a descriptive name essential. Signs which are artistic in character and perfectly legible at all times should be posted at the beginning of all trails within the park and at all the intersections within the area. A standard emblem designating the Iowa State Board of Conservation should be on each sign.

In concluding this dissertation on trails and their construction, I wish to emphasize once more the necessity of leaving such in as natural a state as possible. Leave them in such condition that people will be enticed into the wilderness where they will derive the fullest benefit, such as nature alone can offer. God gave us limbs to use, and yet how many of us would rather ride in an automobile than spend an hour a day tramping along beaten trails. The latter is by far the better sickness preventative and ultimately proves to be the best for the conservation of human life. And now in a few more words I wish to read a small portion of President Coolidge's remarks to the Boy Scouts of America as delegates from that organization were about to sail for Europe during the summer of 1924.

"There is new life in the soil for every man. There is healing in the trees for tired minds, and for the overburdened spirits there is strength in the hills, if only we lift up our eyes. Remember that nature is your great restorer."



ITEMS OF INTEREST

Opossums in Iowa. The Des Moines Register of May 19th and 20th publishes two notes on opossums in Iowa. The item concerning the baby opossums at Nevada states they were found in a chicken coop. Lorrain Walker of Shellsburg caught a mother opossum and her fourteen babies in Wild Cat Grove where he saw it curled up in the hollow of a stump. Opossums have been reported by Prof. Fred Lazell in the Palisades State Park near Cedar Rapids, in the Ledges State Park by Carl Fritz Henning, and in the Lacey-Keosauqua State Park by H. E. Rees. Evidently they are becoming numerous.

Rattlesnakes. Rattlesnakes, though once common in many parts of Iowa, are still frequent in northeastern Iowa, but rather infrequent in other sections of the state. Mrs. Ora Pascal of Fort Madison, Iowa, ran over one with her car recently, according to the Des Moines Register of May 20th.

Planting in Our Parks. Considerable planting was done this spring. Some 11,000 trees and shrubs were set out in the Lewis & Clark Park, some 3,000 in the Little Wall Lake Park, something like 2,000 in the Lost Island Lake State Park, and some 1,000 each in the Tuttle Lake and Twin Lakes Parks. A considerable part of the material and work was donated to the Conservation Board. We are glad to report that in spite of the dry weather the plants are making good progress.

Fish and Game Department. The Fish and Game Department has been helping the Conservation Board in taking care of some of the great problems connected with the lakes of the state. This is a very material help to the State Board of Conservation. We noticed one item in the press recently that 14,000,000 young pike have been turned into Clear Lake from the state fish hatchery at that place. This work was under the supervision of the Assistant Fish and Game Warden, Mr. R. T. St. John. We also notice that the fish hatchery at Spirit Lake has supplied a large number of young fish for the various lakes. The distribution of these young fish is highly commendable and praiseworthy and we are sure will make the fishermen all happy.

Pilot Knob. "We have a great many varieties of birds that have wintered here in the swamps and low places because they have been protected and are undisturbed. We also have many squirrels of the fox and gray kinds. They have been driven into the park from adjoining timber lands." H. L. Taylor.

Names of Parks. Most of our readers are familiar with the discussion that has been going on as to the proper name for Mt. Rainier. The Mt. Rainier area is included in a magnificent national park. Two cities, Seattle and Tacoma, have had a long controversy about the name to be given to this glaciated peak near these two cities. It is well known to most people that the peak commemorates an English Admiral by the name of Rainier, who saw the peak more than a century ago. The state of Washington has

memorialized Congress to change the name to Tacona. The United States Senate has actually passed a resolution to change the name and this was done out of respect for the North American Indian. It seems to be a quite universal practice to use Indian names where possible. The state of Iowa has done this in the naming of several of its parks and I hope the custom will prevail to use where possible these names in other state parks.

Coming back to Mt. Rainier, in order to have the change made legal, the House of Representatives will have to pass a resolution concerning it. The friends of the change of name hope that it will be possible to have this done.

American School of Wild Life Protection. This school was established in 1918 by Rev. George Bennett and will meet in its seventh annual session at McGregor, Iowa, on August 8-20. A large faculty will give the lectures on topics pertaining to botany, zoology, bees, geology, Indian lore and archaeology. Governor Hammill will also be there. The Izaak Walton League of America is giving this school financial support. August 18 and 19 will be called Indian Days. It is to commemorate the one-hundredth anniversary of the signing of the Indian treaty of 1825 at Prairie du Chien. Thousands of Indians of the upper Mississippi river are expected at Prairie du Chien and McGregor. Information may be obtained through Florence L. Clark of McGregor. Miss Flora Warren Seymour will take part in the conference.

Park Rules and Regulations. Mr. C. H. Diggs and Mr. Merckens, secretary of the state board of conservation, have prepared neat printed signs on linen cloth giving the rules and regulations of state parks. It is hoped that those who visit our parks will stop to read these regulations. It is important that the public should respect these rules and regulations if we are to preserve our plant and animal life. In this connection it may be of interest to state that we have had several small fires in our state parks and only by heroic measures were they put out. In each instance it is thought these fires were started by the throwing away of lighted cigarettes. The state of California has just passed a stringent law on lighted cigarette and cigar fires. The rules are herewith reprinted:

IOWA STATE PARK RULES

1. The Park Custodian has police power.
2. Do not build fires except where indicated by stoves or fire places. Use the wood provided at these locations. See that your fire is out before leaving the park.
3. Do not park in roadways. Use the marked parking areas. Drive slowly.
4. Place all tin cans, newspapers or other trash in the containers provided. If a container is not available carry your trash from the park with you.
5. Do not pick or remove from the park any flowers, shrubs, trees or other growing plants, or destroy animal life.
6. Domestic animals must not run loose in this park.
7. No permanent camping allowed in this park.
8. The use of firearms is prohibited.
9. The display of posters or other means of advertisement is prohibited on park land.
10. Please register before leaving the park.

“Remember, you were not the first over the trail and you will not be the last. Leave the pleasant places, if you have enjoyed them, just as pleasant for those who will follow you.”

THIS PARK IS UNDER THE CONTROL OF THE STATE BOARD OF CONSERVATION

Fire in Ledges State Park. Mr. Carl Fritz Henning writes concerning several fires which were started carelessly in the Ledges State Park, speaking especially of the work of the Boy Scouts: "I want to say a few words for the little Boy Scouts that helped me. Two or three of the boys were young men, but the most of them were about 12 to 14 years old. They were eating their lunch in the cabin when I called them to help me fight the fire. Every one of the boys fought like a man. Some took their sweaters, some took off their scout shirts to fight the fire. One little fellow who had no sweater and only a very light shirt took off his trousers to help beat out the flames."

Twine for Birds. The following interesting article was published in the West Union Argo Gazette: "Edgar R. Harlan, curator of the state historical department, has been securing the discarded cotton twine from the composing room of the Iowa Homestead and placing it where birds can utilize it in nest building. He interested 300 school children at the Webster school in Des Moines and he has been amazed at the results. A little colored boy told him the other day that he knew where there were three robins' nests made largely from this waste twine. Mr. Harlan says that robins use twine when it is impossible to secure mud for lining their nests. By the way, black birds are with us again. They mate in the south and the male comes north two weeks in advance of the female. How do you suppose they find each other?"

Senator Horchem on Beautifying the Highways. Senator B. J. Horchem of Dubuque has some splendid ideas on the subject of beautifying highways. He made an address in Boone on the subject last winter. The senator feels strongly on the matter that the public should appreciate more and more the beauty of our landscape. We could plant trees and shrubs which would not only be useful from an economic standpoint but also help to make Iowa beautiful. There are in Iowa many places where cuts and fills occur that might well be planted to shrubs. They would in no way injure the highway. In fact, they would help to hold the earth; and what a lasting impression a beautiful highway would make on those who passed through Iowa.

California Passes Park Bills. We are pleased to note that the state of California has passed two park bills. Up to this writing it is not known whether the governor of that state will sign the bills or not. The state of California has a number of monuments and places of historic interest on its hands, besides some 13,000 acres of state park areas valued at fully three million dollars. They are managed by three separate and distinct governmental bodies. Between them there is no co-ordination. The new board will coordinate the park work.

National Conference on Outdoor Recreation. The second annual meeting of the National Conference on Outdoor Recreation will be held in Washington, D. C., sometime in December. It was to have been held there from May 28 to 30, 1925.

Park Booklets. The State Board of Conservation has made arrangements to publish park booklets describing the more essential features in connection with the botany, zoology and geology of the park and the recreational facilities. These booklets will be handsomely illustrated and printed on good paper. The booklets of three parks are in press, namely the Ledges, Dolliver Memorial and Eldora Pine Creek Park.

Landscape Work in Parks. Mr. J. R. Fitzsimmons and Prof. C. H. Diggs, landscape architects, have completed the recreational and landscape survey of the Ledges State Park and are making a study of the Backbone Park in Delaware county. The State Board of Conservation hopes that these surveys will give the people a better knowledge of the recreational and scientific features of our parks. Their constant advice is appreciated by the board.



SHELTER HOUSES AND ROADS IN PARKS

Prof. A. H. Kimball has drawn plans for shelter houses at Lost Island Lake and the Ledges State Parks. These are of neat and rustic design and will fit in with the park conditions. At the Ledges State Park there are enough logs from the clearing made for the road, and the material used at the Lost Island Lake Park will come from the Palisades State Park. The cabin in the Dolliver Memorial Park has also been completed under the direction of C. N. Douglas.

Silver Lake. Silver Lake Park at Delhi is to have a log cabin, a duplication of the old log courthouse that once stood near the entrance to the state park there. It is to be built under the auspices of the Commercial club at Delhi in order that tourists may have a shelter house.

Eagle Lake. The shelter house at Eagle Lake, Hancock county, is about completed. The building is in harmony with the surroundings. Eagle Lake is one of the pretty lakes in Hancock county. The people of Britt have largely been responsible for looking after their park and its creation. Mr. L. G. Roberts of Britt is the honorary custodian. Since April 13 to May 26 1013 persons have registered.

Eldora Pine Creek Park. The shelter and bath house in this park, built of native red sandstone, is nearing completion. It is a handsome structure fitting into the landscape. This structure was very much needed. The building was designed by A. H. Kimball and its construction supervised by the custodian, P. T. Davison.

Roads in Parks. The State Board of Conservation and the Executive Council made arrangements to have roads built in the following parks this summer: Pilot Knob, Dolliver Memorial, Lost Island Lake, and the Devil's Backbone near Winterset. The roads in the Wapsipinicon, Palisades and Backbone park in Delaware county were constructed last year. Some finishing up is being done this season. The road in the Ledges State Park is under construction and will be completed before the season is over. This work is under the careful supervision of Mr. Hutton of the Highway Commission.



BOOK AND JOURNAL ITEMS

Ames Forester. There has come to the editor's table the "Ames Forester" for 1925, being the thirteenth volume of this publication published annually by the Ames Forestry Club. This publication in addition to practical articles pertaining to forestry by C. H. Collingwood, E. L. Vinton, F. B. Trenk, C.

W. Martin, L. H. Pammel the volume contains an especially interesting paper by Carl Fritz Henning, our custodian of the Ledges State Park: "The Ledges—Nature's Dreamland." He has portrayed beautifully the striking features of the Ledges State Park. It is poetry written in prose.

The Wilson Bulletin. The Wilson Bulletin is a quarterly magazine devoted to the study of birds in the field and is the official organ of the Wilson Ornithological Club. This splendid quarterly publication is edited by the well known ornithologist, Dr. T. C. Stephens of Sioux City, who is rendering American ornithology a splendid service in this publication. The present issue, volume 37, has several interesting articles by: Althea R. Sherman on the subject, "Down with the House Wren Boxes"; Adrian Larson, "The Birds of Sioux Falls, South Dakota, and Vicinity". These are articles of particular interest to the people of Iowa.

Horizons. The second number of Horizons, the quarterly magazine of the landscape architecture department of Iowa State College at Ames, has come to the editor's table. This number, like the preceding, contains a large number of articles pertaining to the profession of landscape architecture and some of these articles will certainly be of interest to those in charge of state parks.



Wild Prairie Phlox, photo Dr. Ada Hayden.

There are articles by R. B. Johnson on Water Gardens, by L. D. Tilton on Town Planning, by F. A. Robinson on Economy of Professional Service, and by Arthur R. Nichols on Planning State Institutions. The magazine is gotten out in commendable style and form.

Isle Royale in the Lake Superior Region.

The interior department has taken the first steps, according to National Parks Bulletin, March 31, 1924, to make a national monument out of the Isle Royale in the Lake Superior region. There are 1,800 moose and 400 woodland caribou, besides sharp-tailed grouse and other fowl in this area. The island is forty-five miles long and nine miles wide.

Fur Animals. Some of our custodians may

be interested in a recent farm bulletin No. 1445 of the U. S. Department of Agriculture, Laws Relating to Fur Animals, for the season 1924-25, by Frank G. Ashbrook and Frank L. Earnshaw. It may be obtained by writing to the United States Biological Survey, Washington, D. C. There appears this interesting statement in the bulletin: "If the fur business is to maintain its position among great industries of the country, the continual source of supply must be assured. The trappers and the furriers, as trustees, are jointly responsible for the permanence of our fur resources." The annual turnover in the fur business is \$400,000,000. The Fur Traders' Association at its recent meeting adopted a resolution that they proposed to co-operate with the Bureau of United States Biological Survey in the curtailment of the bag limit on fur animals and to co-operate in other ways for the reproduction of these fur bearing animals. This is an indication that these dealers are beginning to appreciate the value of conservation in our wild life.

Herons and Other Bird Matters. Dr. T. Gilbert Pearson has issued a fine bulletin "Herons of the United States," Bulletin No. 5, issued under the auspices of the Audubon Societies. This fine paper is handsomely illustrated with colored plates and half tones. The descriptions are full and ample. Everything Dr. Pearson does is fine. In the Foreword a place is made for the Audubon Law which among its provisions makes illegal the killing of herons. He reviews the federal law to kill egrets or to sell their feathers. The Audubon Society played a notable part in securing the passage of this law.

Circular No. 8 of the Audubon Societies, "Is American Game Protection a Success?" an address delivered before the National Conference on Outdoor Recreation, has this interesting statement: "The earth as modified by human action has a continuous ever changing effect upon the wild bird life. When man cuts down a forest or drains a marsh, it does not necessarily follow that the resultant changes reduce the number of birds of the region. It means that a new set of conditions unfavorable to some species has developed, while on the other hand surroundings more conducive to the welfare of other forms of life have come into existence. Thus eliminating the woodland may destroy the home and food of the ruffed grouse, and the draining of the marsh surely will deprive the wild duck of its haunts, but the farm lands which appear in their turn provide congenial homes for the quail and vesper sparrow."

"Forty years ago the speaker lived in an open pine-wood section of central Florida. At that period many settlers were coming in cutting down the pine trees, and for shade along the streets of the town were planting water oaks. A recent visit to that region revealed the fact that the brown-headed nuthatch and sparrow hawk once abundant in the neighborhood had almost entirely disappeared and in their place, because of the oaks and other thick foliaged deciduous trees, there have come the cardinal, brown thrasher and the crested flycatcher."

In Circular No. 7 of the same society Dr. Pearson says: "While I believe that no question of sentiment should prevent due justice being meted out to bird offenders, I hope that this body will protest against the wholesale condemnation of any bird without due consideration of its merits, as well as of its demerits. A verdict should not be pronounced by the plaintiff; give the accused a hearing before the 'Federal Court' of the Biological Survey. Then we may accept whatever decision is handed down with the assurance that it is based on adequate evidence and an unbiased, expert estimate of it, not from a local, but from a national viewpoint."

Black Walnut. From a recent interesting bulletin on the Black Walnut for timber and nuts (Farmers' Bulletin U. S. Dept. Agr. 1892) by Wilbur R. Mattoon, the statement is made that in 1920 the total stand of black walnut in the United States was 820,000,000 board feet of which Iowa has 60,000,000 feet. The bulletin describes some of the cultivated forms of the walnut. The paper states that there is an increasing use of the nuts as food.

Landscape Work in Parks. In a recent number of Parks and Recreation (Vol. VII, p. 36) there appears in full the fine paper by Harold A. Caparn, "Need of Landscape and Architectural Experts in State Park Development," which was read at the fourth National conference on State Parks at Gettysburg. There are a number of fine suggestions in this paper. He suggests that a thorough study be made of the flora, fauna and geology of the area and the surrounding country before improving and planting.

Parks in Texas. The same number of Parks and Recreation (Vol. VII, p. 17) contains an article "A Notable Achievement," by Vance Prather, stating that Governor Neff talked parks. They have recently received fifteen parks varying in size from 15 acres to 1,100 acres, and on an earlier trip 14 more. This makes 29 state parks for Texas. The governor has made three campaigns in that state to create state parks. He talked on parks and good roads leading to them. One of the phrases used by him was: "And when we benefit humanity, we serve God." Some of these parks are in the mountainous country of Texas—the Davis-Guadalupe mountain ranges where there are peaks ranging from 6,000 to 9,500 feet altitude. In his "preaching for parks" from July 14th to July 26th the governor received fifteen areas which



Wild Rice. Photographed by C. M. King.

were donated to the state. These gifts vary from 15 acres to 320. He got his inspiration for these parks from his mother who, at the age of 91, donated a small tract of 8 acres on the banks of Leon river to the state for park purposes.



REPORT NATIONAL CONFERENCE ON STATE PARKS SKYLAND, VIRGINIA, TO GOVERNOR JOHN HAMMILL

By MRS. E. F. ARMSTRONG and CHARLES F. DIGGS

We, the delegates appointed by you to represent the State of Iowa at the Fifth National Conference on State Parks held at Skyland, Virginia, May 25, 26, 27, 28, 1925, make the following report:

This conference, in the Blue Ridge Mountains of Virginia, was appropriately located to encourage enthusiasm for the proper location and use of state parks. It was demonstrated, by the papers read before this conference, that state parks are not tourist camps, or parks so situated as to be, primarily, for the use of city dwellers, but are to be areas for the use of all the people; therefore, consideration of scenic beauty must receive first attention. This was the keynote of the conference.

Judge Payne, Chairman of the Conference, introduced Governor E. Lee Trinkle, Governor of Virginia, who extended the hospitality of Virginia to the delegates. Hon. Hubert Work, Secretary of the Interior, spoke of the wonderful possibilities of a well developed park system in every state. Director Stephen T. Mather of the National Park Service presented a large map of the United States showing the present location of state parks and future possibilities. It was apparent that Iowa occupies a medium ground in the size and number of parks.

In the minds of a large number of delegates to the conference the outstanding paper presented was one by Mr. James L. Greenleaf, President, American Society of Landscape Architecture, on the subject, "Study and Selection of Sites for State Parks." A complete copy of this paper is herewith appended. Major William A. Welch, General Manager, Palisades Interstate Park of New York, led the discussion on this paper.

A report submitted by the Conference Committee on Park Roads was unanimously accepted by the delegates. In view of the varying opinions held on road development in our state parks by those in authority, this report seems especially suggestive at this time and a complete copy of it is appended. The chairman of this committee, Mr. E. A. Sherman, was formerly an Iowa newspaper man but has for many years been connected with the United States Forestry Service and his opinions are valuable because based on many years of observation and experience.

Several of the meetings were held in the open air. One was devoted to a report from each state. Dr. L. H. Pammel, Chairman of our Board of Conservation, who was unable to attend, sent the report from Iowa. It is not an exaggeration to state that this report was a clearer and more business-like statement of the past year's work than any other report presented. Considering the great number of inquiries in regard to Dr. Pammel by members of the conference, it might be well to state that Iowa should be and is proud to have a man who has taken such a thorough interest in the development of

our state park system. It is to be regretted that he could not attend this conference.

After a study of the subject matter, papers and reports of this conference the conclusion can be reached that Iowa occupies a very important position as an example to other states in the development of its state parks. We do not have the immense natural scenery or the financial resources of many states but what we have we make use of intelligently. No small portion of this credit is due to the concentration of responsibility in one Board, the Board of Conservation, and the economical and efficient administration of our parks thus made possible. Many of the delegates to this conference made special inquiry in regard to this point.

The one outstanding fact brought from this conference is that Iowa will have to work hard to maintain its present position in regard to state park development. The country is thoroughly aroused to the importance of this work and other states are making rapid advancement. The true meaning of State Park development has been properly maintained in this state, it must and will go forward.

Respectfully submitted,

(Signed) MRS. E. F. ARMSTRONG,
Member, Iowa State Board of Conservation.

(Signed) CHARLES H. DIGGS,
Consulting Landscape Architect for the Board.



REPORT OF COMMITTEE ON HIGHWAYS

Fifth National Conference on State Parks Skyland, Virginia, May 27, 1925

The increasing use of automobiles and resulting traffic problems call for an expression of the policy which should govern the admission and use of transportation ways and facilities in connection with the development and management of public parks. As a possible contribution toward the avoidance of costly errors and controversies, the following statement of principle is offered as a general guide which may prove helpful in handling such problems.

STATEMENT OF PRINCIPLES

1. In a park, travel is an incident, not an objective. The transportation routes should be designed to promote the highest use of the natural recreational resources of the area; rather than the resources being developed to promote travel. Highways, roads, trails and footpaths are servants of the park; not its masters. Primary park objectives must control travel instead of being controlled by it.
2. Every park, whether national, state, county or municipal, should have an adequate system of transportation routes constructed to a standard suitable for the service required.
3. However, the service required of such roads and ways depends upon the size, location and nature of the particular park and the character of recreational service expected of it.
4. The plan of park service and the development essential to that service must be determined prior to the planning of the transportation system.
5. A park which will be used chiefly by a daylight automobile crowd, where the patronage does not justify resort development or supplemental means of transportation such as carriages and saddle horses, must plan its de-

velopment along the line of automobile routes leading to camp grounds with adequate parking areas with supplemental foot trails leading to points of interest and beauty. For a small park such a terminal may very properly be a feature external to the primary park area.

6. Areas more extensively patronized may justify an internal transportation system, based upon carriage roads, bridle trails and supplementary foot paths. In such cases the automobile route may end at the park entrance, may terminate at the chief resort, or may connect a number of resorts, with a supplementary road and transportation system centering at each.
7. Each park is, therefore, a separate and distinct problem. The formulation of specific rules or the determination of standard specifications must await the plan of development contemplated in each case.
8. Conservatism should prevail in developing a system of transportation routes and structures in public parks. All doubts should ordinarily be resolved against opening virgin areas of natural scenery to automobiles or other modes of rapid transportation. If a real mistake is made in not opening an area, the error is easily corrected; but once an area is opened, no matter how deplorable the results, the error usually proves irremediable. We, therefore, suggest that engineers, when studying road locations in public parks, adopt as a guiding rule, "When in doubt, don't."

Respectfully submitted,

(Signed) E. A. SHERMAN,
Chairman, Committee on Highways.



Black walnut plantation on experiment station grounds at Ames. This plantation is ready for thinning out in order to increase the growth of the remaining trees. Many acres of land in Iowa which are overflowed during parts of the year are suitable for production of walnut and other tree crops. Photographed by Prof. G. B. MacDonald.



Blue Lake, Monona County.

